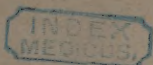


Wilson (H. P. C.)



PAQUELIN'S THERMO-CAUTERY

WITH

Wilson's Antithermic Shield,

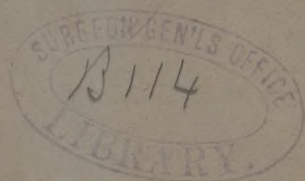
IN

EPITHELIOMA OF THE CERVIX UTERI.

By H. P. C. WILSON, M. D., ✓

BALTIMORE, MD.

Gynaecologist to St. Vincent's Hospital and the Union Protestant Infirmary; Vice President of the Baltimore Academy of Medicine; of the Medical and Chirurgical Faculty of Maryland; and Ex-Vice President of the American Gynaecological Society, etc.







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Read before the Medical Society of Virginia, Oct. 23d, 1879.)

By your courtesy, Mr. President, and the courtesy of this Society, I will detain you for a few minutes to-day, with some remarks on the Removal of Epithelioma of the Cervix Uteri, by Paquelin's Thermo-Cautery, with Wilson's Antithermic Shield.

A little over one year ago, I performed my first operation of this kind with Paquelin's thermo-cautery. When this instrument first came into my possession, I recognized in it a most valuable addition to our surgical instruments, and one of peculiar merit for extirpating malignant tumors on the surface of the body, and where there was liability to excessive hæmorrhage. With the same stroke, it combines so beautifully the bistoury and the actual cautery, that the surgeon wields it with a confidence and rapidity hitherto unknown; realizing that what would escape the bistoury, will be destroyed by the cautery, and what would be required of styptics and ligatures, will be done by caloric.

At the same time, I realized that unless the intense heat emanating from the shaft of the knife could be counteracted, the instrument would be of little practical use in the surgery of gynæcology—to which it is peculiarly applicable—as we are nearly always operating in deep and narrow cavities, where it is difficult, in many cases, to tie or compress arteries, and check hæmorrhage.

At this time, I was called by one of our most distinguished obstetricians, to see a case of epithelioma of the cervix uteri. It was evidently just the case for Paquelin's cautery; but how to manipulate that red hot knife, with a searing hot shaft, up a narrow vagina, so as to amputate the cervix, without burning a hole in the bladder or rectum, and blistering the whole vulva, I was at a loss to know.

It was clear, to my mind, that this operation (as most others about the vagina and uterus) could only be done skillfully and successfully through Sims' speculum. No bivalve, quadrivalve, or cylindrical speculum, would allow sufficient play to the shaft of the knife, to permit the operator to swing the blade around the cervix, close up to the vaginal junction, in the act of amputation, nor to peel out the supra-vaginal portion of the cervix, if infiltrated with malignant deposit.

I therefore surrounded the shaft of the knife with a sheath of wood as the best applicable non-conductor of heat that occurred to me. I hoped to remove the cervix so rapidly, that the operation would be over before the vagina and vulva could be burned through the wood. In this I was disappointed, and was horrified to see the wooden sheath blazing in the vagina before the operation was completed. This case, after much suffering, made a good recovery, and will be reported further on.

In my next operation for epithelioma of the cervix uteri, I used pledgets of wet cotton and wet felt to protect the walls of the vagina; but in manipulating the knife they became displaced, and their contact with the hot shaft generated so much steam as to obscure vision. Asbestos was then tried, and although for about three minutes it remained sufficiently cool to protect the soft parts, it then became as hot as the shaft, and had no protecting power.

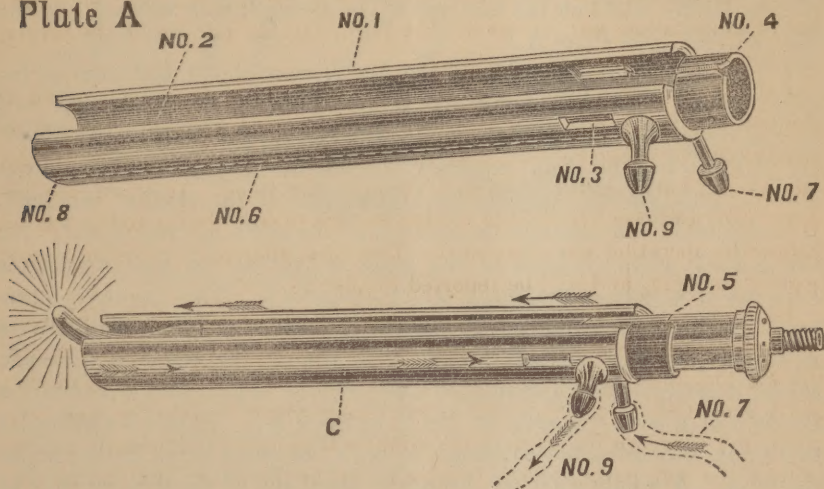
Although thus frustrated in my efforts to protect the soft parts against the injurious effects of heat when operating in the vagina with Paquelin's cautery, I was so impressed with the value of this instrument above all others, for certain operations in this locality, that I was nothing daunted in my efforts to procure a heat protector. The wooden sheath was the very thing, if I could only keep it cool; and the idea occurred to me of a light, hollow, metal sheath, to be kept cool by a stream of cold water constantly circulating through it. This idea was worked into practice by Mr. Charles Willms, the most ingenious and practical surgical instrument maker, of

No. 79 North Howard Street, Baltimore. After many alterations as suggested by operations on the living subject, I show you to-day the therm-antidote or antithermic shield—a big name for a little instrument—but a name as nearly indicating the work which it most successfully performs, as any that I or my friends could devise. It is formed of the two Greek words, *θερμος*, hot; and *αντιδοτος*, given as a remedy; or, in other words, something used as a remedy against heat.

It perfectly protects the adjacent parts against the injurious effects of heat when operating on a given point in any deep cavity, as the vagina, rectum, mouth or abdomen. With the attachment of the antithermic shield, Paquelin's cautery becomes to the gynecologist an invaluable instrument; without it, to him it is worthless.

From a paper read before the Medical and Chirurgical Faculty of Maryland in May, 1879, I copy a description of this instrument, with the addition of more recent improvements. It is a hollow cylinder, of sufficient size to allow the shafts of Paquelin's knives to slip easily into it (as may

Plate A



be seen at No. 1, Plate A). It is made of German silver, five and a quarter inches in length. On its upper surface, for its whole length, is a fenestrum of one-fourth of an inch. (See No. 2, Plate A.) This fenestrum is necessary to allow the insertion of a curved knife, such as No. 9, in Collin & Co's catalogue of the thermo-cautery. It is also important to give sufficient air to the shaft of the knife, and to prevent too rapid and excessive cooling of the shaft, by which it would be difficult to keep the knife properly heated; nor does this fenestrum allow the heated shaft to come in contact with the soft parts, for in whatever way the knife is turned, the fenestrum is always at the distal side from the walls of the cavity. The antithermic shield increases the diameter of the shaft of the thermo-cautery six mm. A

bridge two mm. wide is placed on its concave surface, one and a quarter inches from its distal extremity. On this bridge rests the shaft of the thermo-cautery, and allows sufficient space between the cautery and shield for free circulation of air. In this way, again, we prevent the knife from being too rapidly cooled by too close contact with cold water ever flowing about it.

Its near extremity is provided with a flat circular spring, nine mm. wide (as seen at No. 4, Plate A), for the purpose of manipulating the therman-tidote backward and forward, and fixing it at any point on the shaft of the cautery, so as to allow the surgeon to use any desirable portion of the end of the knife.

In order to prevent the antithermic shield from turning on the shaft of the thermo-cautery (by which the manipulations of the operator would be embarrassed), the upper portion of this spring is left open to receive a guard, which is attached to the top of the shaft of the knife. This guard is thirty-five mm. in length, and two mm. in width, and effectually prevents any rotation of the shield on the cautery. (The spring is seen at No. 4, and the guard at No. 5, in Plate A.)

On the right and underside of the antithermic shield, and running between its two plates, is a canula, five inches in length, and projecting half an inch from the external plate, at its near extremity. This canula delivers cold water at the distal extremity of the shield, where it is poured out into its cavity, thereby keeping the hottest part of the shaft of the knife perfectly cool; consequently the balance of the shaft is even cooler. By this method, while the blade of the knife is kept at red heat, its shaft is kept nearly as cold as the water which irrigates it. This canula is represented by No. 6, in Plate A. It receives the water at No. 7, and delivers it at No. 8. After passing through and around the whole antithermic shield, it emerges from a canula, one-half inch in length, with a perforation one-fifth of a mm. (as seen at No. 9, in Plate A). To this is attached a small gum tube, of sufficient length to carry the water into a bucket under the table. A weight attached, keeps the distal end of the tube securely in the bucket.

The antithermic shield is kept constantly supplied with a current of cold water, by a gum tube attached to the canula at No. 7, in Plate A, and connecting with an Eguisier's irrigator. This irrigator, when filled with water, will take twenty-five minutes to discharge its contents; and all that is necessary in a lengthy operation, is to require an assistant to fill it up from time to time. I have kept it constantly running for two hours.

The irrigator opening, delivering the water to the antithermic shield, is one-fifth of a mm. in diameter, which allows the water to be discharged sufficiently fast for all cooling purposes; and not so fast as to exhaust the

irrigator too rapidly. The canula opening for the same tube, is two mm. in diameter.

Letter C, in Plate A, represents the antithermic shield applied to the thermo-cautery.

PLATE B

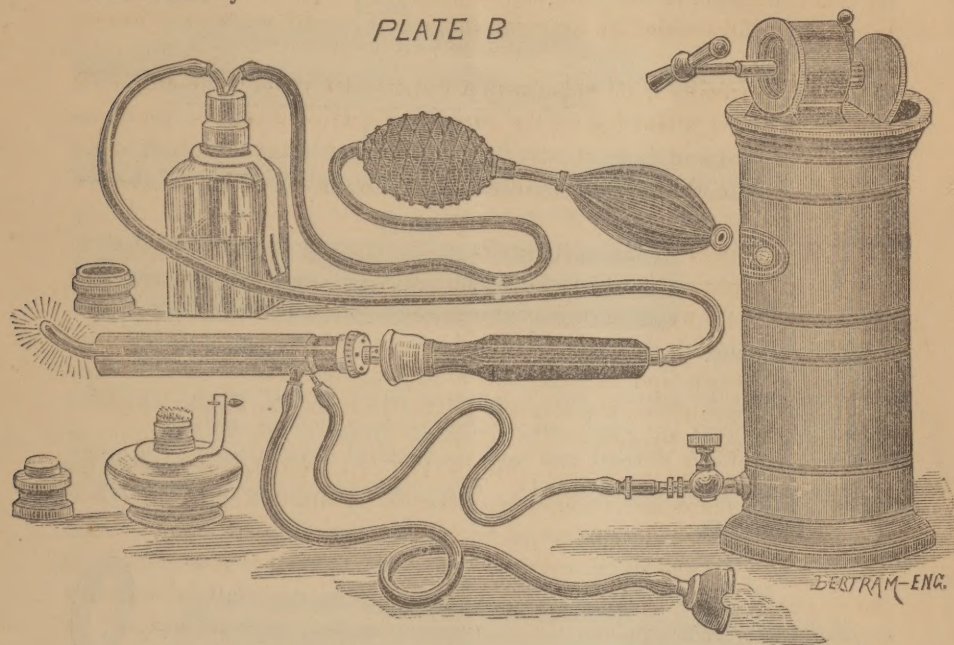


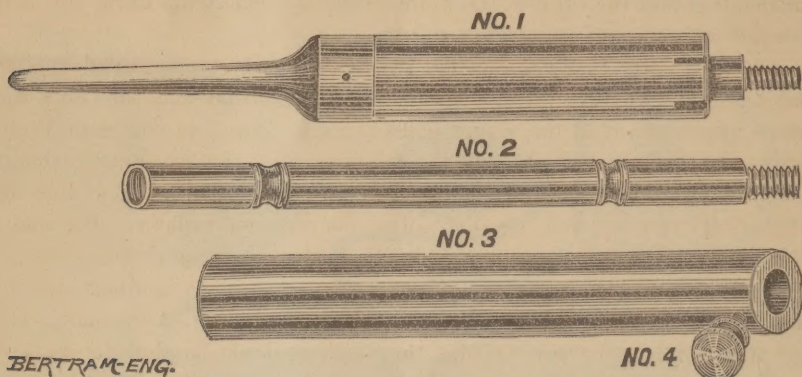
Plate B represents Eguisier's irrigator and the antithermic shield applied to Paquelin's thermo-cautery. At an operation, the irrigator sets on a small table; and it and the connecting tubing are not at all in the way of the operator. It should be remarked that the antithermic shield is adaptable to all the forms of cautery-knife suggested by Paquelin; but from the fact that the knives and blunt button-like cautery are of different lengths, of different diameters, and of different finish, at their extremities, it is necessary that different devices should be employed to make the antithermic shield applicable to the various knives and cauteries.

Thus, in Plate C, No. 1 shows one of Paquelin's short knives, and No. 2 shows the stem for screwing on and lengthening No. 1; but this stem is too small to be held firmly by the same antithermic shield used with the curved knife. To overcome this difficulty, I have invented a short cylinder (as seen at No. 3, in Plate C), which slips over stem No. 2, and is fixed by a thumb screw, as seen at No. 4. This cylinder over the stem renders the shafts of all of Paquelin's short knives of the same length and diameter, and applicable to the same antithermic shield as the curved knife in Plate A.

Owing to the size and diameter of the button-like end of the long blunt

cautery, and the ferule around the near end of the shaft of the same, it is impossible to slip it through an antithermic shield of the same diameter as

Plate C.

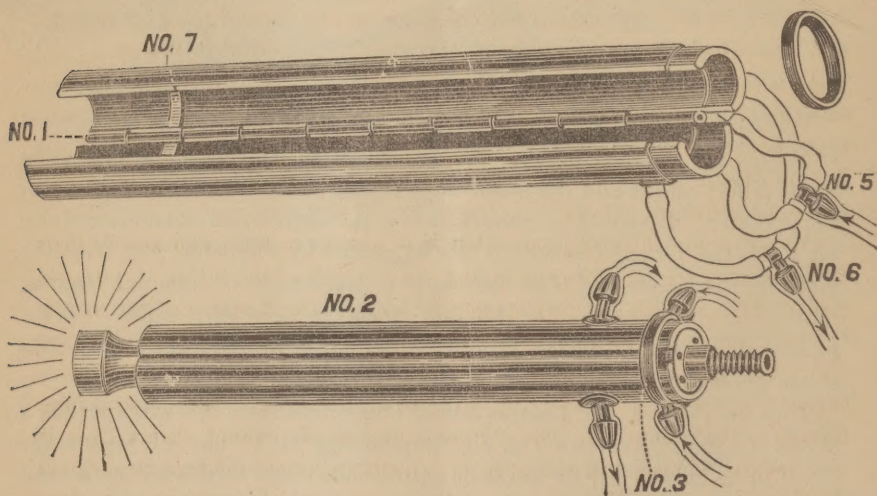


BERTRAM-ENG.

that used with the knives; and it is not desirable to increase its diameter, as it would occupy too much space, when in deep, narrow cavities.

Hence we have devised one with equilateral sides, united by a hinge joint, as seen at No. 1, in Plate D. These halves have each a water supply

Plate D.



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pipe, and water waste pipe, and when brought together, completely surround the cautery, as seen at No. 2, in Plate D, and are thus secured by a ring slipped over them, as seen at No. 3, in Plate D. The best method of managing this cautery, is to heat it first, and when ready for use, lay it in the hinge joint shield, and close the sides around it.

This hinge-joint shield may be used to completely enclose all the knives of Paquelin, by those who prefer it to the fenestrated one; but I prefer the latter to the former, for reasons which I will not stop here to give—only remarking, that the shaft of the knife within the fenestrum never comes in contact with the soft parts when in use.

No. 5, in Plate D, represents the two water supply pipes, united by gum tubing, at the single point of entrance; and No. 6 represents the two water waste pipes united at the single point of exit. No. 7, in the same Plate, shows the bridge on which rests the cautery, as in the fenestrated shield. Its use is to prevent the walls of the cylinder from hugging too closely the shaft of the cautery, and thereby cooling the same too rapidly. We would thus have difficulty in keeping our knife or cautery at the proper heat.

When the makers of Paquelin's thermo-cautery become familiar with the antithermic shield, and learn how essential it is to this instrument, when operating in deep, narrow cavities, they will, no doubt, so alter the shafts of the knives and cauteries, as to make them with plane cylinders, and of uniform length and diameter, and without a ferule at their near extremities; so that each one can be easily slipped into the same shield, and at once be ready for use.

The principle for which I contend, and without which, Paquelin's instrument would be almost valueless to the gynæcologist, is, keeping the shafts of the knives cool, by circulating cool water around them during operations; and this principle is as practical in operation as beautiful in theory.

Although when guided by a steady hand, and guarded by the antithermic shield, Paquelin's thermo-cautery is invaluable for many operations in deep, narrow cavities, it is especially with reference to the *removal of malignant disease from the uterus and vagina*, that I would commend this instrument above all others.

Cancer occurs three times as often in women as in men, and nearly three times as often in the uterus as in any other organ of the body. Gynæcologists in full practice are very seldom without a case of cancer of the uterus not only because of its frequency in the sex and organs to which his specialty belongs, but because of being the opprobrium of both medicine and surgery, and a disease most disgusting to all attendants, the general practitioner is too thankful to pass it into hands which cannot shrink from its treatment. Hence, any therapeutic remedy, whether medical or surgical, which can cure or palliate cancer of the uterus—which can save or prolong more comfortably the life of the sufferer, or shield her from being loathsome to herself and others—is hailed by the gynæcologist with a hearty welcome.

Of the five forms of cancer*—epithelioma, scirrhus, encephaloid, colloid and cauliflower—the first is the one found in the uterus and vagina more

*Drs. Satterthwaite & Porter, *New York Med. Jour.*, Sept., 1878.

frequently than all the others combined. The second in frequency in that locality, I have found to be cauliflower. I have not seen more than two or three cases of scirrhus of the uterus, in a practice of twenty-eight years; and remember only to have occasionally seen colloid cancer, growing from the ovaries.

Practically, then, in my experience, epithelioma is usually the form of cancer with which the gynaecologist has to deal; and all modes of treatment have heretofore been found so unsuccessful, that many of our ablest practitioners are ready to abandon such cases as hopeless so soon as they are presented. With an epithelioma well advanced, growing from the neck of the uterus, and involving to a greater or less extent the vagina, the difficulties of examination and of therapeutical applications are so great, that it is no wonder so many such cases are turned from in disgust. The slightest manipulation with the finger is apt to produce free hæmorrhage; and unless a speculum (and that a Sims') be introduced with great care, and its point kept close to the perineum, it enters only to find the vagina filled with blood, and all attempts at an ocular examination completely frustrated.

Notwithstanding all these difficulties, I believe that the day is not far distant, when epithelioma of the cervix uteri and vagina will be as much under the control or palliative influence of the physician, as any other well advanced chronic or incurable disease.

Epithelioma is the form of cancer, above all others, which, if seen in its incipency, and thoroughly eradicated by any cutting instrument or caustic application, or both combined, is most apt to be radically cured; but when it has existed for any length of time, the malignant deposit extends so rapidly to adjacent parts, or grows so deeply into the parenchyma of the organ, that there is great difficulty, if at all possible, to remove the entire malignant growth; and hence, it is almost certain to return.

I cannot urge too strongly all practitioners of medicine, when they meet with a woman from thirty-five to fifty years of age, with the slightest suspicious symptom of cancer of the uterus, or with any symptoms about the uterus or vagina which are not perfectly normal, that they should at once make themselves perfectly cognizant of the real condition of the parts, both by digital and speculum examinations; and if there is the smallest epithelioma present, it should at once be removed, with as much of the subjacent tissue as would include all possible malignant growth.

I cannot do better here than quote from a paper which I read before the Baltimore Academy of Medicine, Oct. 15th, 1878, where I say, that "if the general practitioner was as prompt to examine a woman's uterus as he is to examine any other portion of her body, under the slightest suspicion of disease, the maladies of that organ would be universally discovered in their acute form; life would be saved in many cases where it is now lost; drugs

would be kept from stomachs into which they are so uselessly poured; and the struggle of the gynæcologist with chronic disease would not be so long and often so fruitless."

The opinion has been held for years by some of our most eminent gynæcologists, and is now growing extensively in the minds of many others, that no stage of epithelioma of the cervix uteri or vagina should be abandoned as beyond hope of cure, prolongation of life, and mitigation of suffering. We are growing in the belief that so soon as the cancer is discovered, all that can be, should be cut away, and what can't be cut away, should be sloughed away with caustics. This treatment, in the first stage of this disease, will save many lives; in the second and third stages, it will prolong life, relieve suffering, and nullify much of the disgust which attends it.

With a red hot knife, such as Paquelin's, guarded by a shield, such as the antithermic, and manipulated through a uni-valve speculum, such as Sims', the surgeon can coolly cut away any malignant growth, from the ostium vaginæ to the cavity of the uterus, without fear of hæmorrhage, or fear of burning any of the healthy parts. There is no necessity to tie arteries—no necessity to compress them or use styptics. Sometimes, in large epitheliomatous growths, when cutting away the whole cervix with this instrument, there will be pretty free bleeding; but by cutting steadily on, without regard to hæmorrhage, it will be found to have entirely ceased at the close of the operation.

Paquelin's thermo-cautery, protected by Wilson's antithermic shield, possesses many advantages over all other instruments for removing cancer from the uterus:

First. The éraseur can remove an epitheliomatous cervix close up to the vaginal junction without hæmorrhage, but cannot go one line above that point; but the cervix must be long enough to allow the application of the chain or wire around it, which is not always the case; and again, without great care on the part of the operator, enough of the vagina, adjacent to the cervix, will be sucked into the grasp of the chain or wire, as to make a hole into the bladder or peritoneal cavity. To cut away an epithelioma of the cervix below the vaginal junction, and leave the portion above that junction infiltrated with cancerous deposit, is useless.

Second. The electro-cautery, in the hands of as skillful an operator as my distinguished friend, Dr. Byrne, of Brooklyn, can be made to amputate an epitheliomatous cervix, close up to the vaginal junction, without hæmorrhage; and with his manipulation, by pulling the cervix more and more towards the operator as the amputation advances, a limited portion above the vaginal junction can be removed, so as to give to the stump a cup-like shape; but if the cancerous deposit reaches anywhere near the internal os, or above, it is out of the reach of the electro-cautery. Besides, it is a

"cumbersome, expensive and uncertain instrument," working all right sometimes, and failing at others. Secondary hæmorrhage is said to have frequently followed its use in the hands of some operators. I have never yet had such an accident to follow the thermo-cautery.

Third The bistoury and scissors, in the hands of as skillful and self-reliant an operator as Dr. J. Marion Sims—who always finds a resource in every emergency—may answer well for amputation of the cervix, and excision of cancerous masses, even in the cavity of the uterus and vagina; but only one Sims is usually found in a generation, and these instruments will hardly be brought into general use for removal of a cancerous cervix.

The hæmorrhage, in many operations of this kind with bistoury and scissors, is simply terrific; so that no amount of sponging can cleanse this deep, dark and narrow cavity, as to give the operator even a momentary glimpse of the point of operation. He must cut with his eyes virtually shut; which very few surgeons are competent to do where careful dissection is necessary. But even if he should be successful in removing the cancerous mass, with all its ramifications, through a vagina always full of blood, the utmost rapidity of sponging and packing the uterus with cotton and iron, could not fail to leave much blood on the excised surface for decomposition, and thereby greatly increase the liability to septicæmia.

Moreover, the great amount of hæmorrhage by this mode of operation, must tell very disastrously on patients already so anæmic from long, and much loss of blood.

Fourth. I am convinced that we must find an instrument with which to excise the epitheliomatous cervix as far as malignancy extends, without much loss of blood, and leaving the cut surface free from all decomposing matter, before we shall gain all that is expected from this operation.

Such an instrument is presented in Paquelin's curved thermo cautery knife, guarded by Wilson's antithermic shield. This instrument is invaluable for many operations within the rectum, the vagina, the mouth and the abdominal and pelvic cavities. These I will not stop here to enumerate. It is particularly in cancerous growths, from their incipieney to their termination, located from the ostium vaginæ to the os uteri internum, that we are especially grateful for this instrument.

Even where the disease is so far advanced that it is beyond hope, much can be done with this instrument to prolong life, mitigate suffering, and quell disgust. By fearlessly cutting away the sloughing masses within the vagina, we stop hæmorrhage, remove decomposing matter, diminish the chances of septicæmia, and thus prolong life in comparative comfort. With no other instrument, with no other therapeutical means, can we so promptly stop bleeding in this disease; with no other agent can we so efficiently remove the decaying tissue that poisons the blood and terminates life. True

the curette is very valuable for this latter purpose, but it does its work with much loss of blood, which usually the patient can ill spare, and is devoid of the cautery power, which is so invaluable in this instrument—beginning, as it does, where the knife ends, in eradicating malignant disease.

Another great advantage in using the thermo-cautery is, that it effectually seals up the mouths of all vessels, so that, even if septic poison is in contact with the surface, the absorbent power of the same is greatly diminished, if not destroyed.

Again, the actual cautery in this disease, to a great extent, does away with the potential cautery, which is so essential after the use of all other instruments.

Dr. J. Marion Sims, in a recent most original and instructive paper* on Epithelioma of the Cervix Uteri, speaks of the absolute necessity of using some powerful caustic (such as chloride or sulphate of zinc, or bromine), after the knife and scissors have done all that they can. In this statement, he is certainly correct: but with the thermo-cautery, much, if not all, of the necessity for these caustics is prevented, and the patient is spared the pain which they occasion, and the demoralizing effects of anodynes which they necessitate.

It may not be out of place to repeat here some cautions for the use of the thermo-cautery, which I have heretofore given in a paper entitled "The Thermantidote."

1st. The benzine bottle should never be more than two-thirds full. If too full, the slightest tilt of the bottle would cause the benzine to flow down the tube attached to the cautery; and patient, operator and assistants might be set on fire. Or a little extra air forced into the bottle when too full, might lift the benzine into the tube by atmospheric pressure, and cause the same accident.

2d. The benzine bottle should never be hung to the operator's clothing, or placed in his pocket. If so attached to his person, he, in the act of bending forward, might tilt the bottle so as to cause a like accident, although very little benzine was in use.

3d. The benzine bottle should be held *securely* in the left hand of a trained assistant, and the rubber bag for heating the knife in the right hand of the same assistant. This assistant, under no circumstances, should be allowed to leave his post for any other work. His only duty is to take care of the benzine, and watch closely the point of the knife, so as to keep it at the proper temperature.

4th. The hard rubber receptacle for benzine, sold with the American imitation of this cautery, is recommended by some to obviate all the objections to the benzine bottle of Paquelin. I think the objections to the for-

**American Journal of Obstetrics*, July, 1879. "Epithelioma," by J. Marion Sims.

mer are far greater than to the latter. This receptacle is filled with clean wool; and when used, this wool is to be saturated with benzine. If there is too little benzine, the instrument will not work, or it will give out in the middle of a long operation; and if there is too much benzine, it runs readily down the tube to the hot knife, or is forced there by atmospheric pressure, and patient and operator are set on fire. This accident occurred to a friend of mine in Baltimore in this way. The instrument would not work with the amount of benzine with which the wool was charged. He poured in more, and with the first squeeze of the rubber bag connected with the benzine holder, this fluid was forced to the knife, and it, and patient and operator were in a blaze. My friend gave up his instrument in disgust, and has not used it since.

This accident could not occur with the glass benzine bottle of Paquelin, provided the precautions given above are adhered to, and the instrument is in the hands of a competent assistant. No one should operate with Paquelin's thermo-cautery without such assistant. With the glass bottle benzine-receiver, the whole thing is under our eye, how much is in the bottle, and how near it comes to running or being forced into the tube. With the hard-rubber benzine-receiver, everything is shut off from sight, and we cannot tell whether there is too much or too little benzine, or whether the wool itself is the obstructing cause of the non-working instrument.

5th. The blade of the knife should never be heated too hot. A dull, red heat is best, and this redness should never extend above one-third of the blade.

6th. If the knife is too hot, we cut no better, lose more blood, and are in danger of bending and injuring the blade, and of burning up the platinum gauze within the blade, thus rendering the knife worthless. This latter accident has once happened to me.

7th. When we are done using a knife, it should be heated a little extra hot; and while so, quickly separated from the gum tube supplying the vapor of benzine. It should then be held for a few minutes in the flame of the alcohol lamp, and thus be allowed to cool off by degrees. By so doing, no carbon deposit will be left within the blade of the knife, and it will be in perfect order for future use.

8th. Because of the injudicious heating of the knife, and destruction of the platinum gauze, or clogging the same with carbonaceous deposit, we are sometimes unable to heat the knife to the operating point. This is very embarrassing, and can be avoided by a little care on the part of the assistant.

9th. Every case of Paquelin's thermo-cautery should contain a small metallic brush, with which to cleanse the blade of all burning tissue which adheres to it with each incision. This clogging of the blade impedes its

proper heating. The duty of an assistant is to remove such tissue as it accumulates.

10th. In all operations with the thermo-cautery within the vagina, four assistants are essential—one to give chloroform, one to work the cautery, one to hand instruments and to hold the knife when the operator desires to be relieved of it, and a fourth to hold Sims' speculum—the only one fit for use in all uterine surgery.

The following four cases are reported in the order in which they came to me, as illustrative of the use of Paquelin's cautery with Wilson's antithermic shield in epithelioma of the cervix uteri:

CASE I — Mrs. K, æt. 46, married and sterile. I was called to see her Sept. 19th, 1878. She had been having hæmorrhages from her womb for eight months previously, and for two months they had been so profuse and so exhausting, that she had been confined to bed. An examination revealed epithelioma of the cervix uteri, but the uterus was free, and the disease seemed confined to the neck alone.

I advised cutting away the epitheliomatous cervix with Paquelin's thermo-cautery, which proposition was agreed to. I was at a loss to know how to accomplish it without burning dreadfully all the soft parts from the vulva to the uterus. After exercising all my ingenuity in the limited time allowed before the day of operation, I could think of nothing better than to encase the shaft of the knife with a sheath of wood—hoping to cut so rapidly as to finish the operation before the wood could burn.

On the 7th of October, 1878, the patient being chloroformed by Dr. Miltenberger, assisted by Dr. Griffith, and Sims' speculum held by my nurse, I proceeded to remove the whole cervix up to the internal os; but before this was accomplished, the wooden sheath was on fire, and the patient was dreadfully burned about the vagina and vulva. (I here exhibit the charred remains of the wood used on that occasion.)

The patient suffered greatly from that portion of the burn exposed to air, but the burn within the vagina and about the uterus gave no inconvenience.

The stump of the wound presented the appearance of a hollow cone, with the little end upwards—showing that the malignant cervix had been peeled out with Paquelin's curved knife, just as we would peel out the core from an apple.

The patient made a good recovery. In four weeks she was up and well, and the wound cicatrized. About four months after, I was called to see her. She had had a little show of blood, and an examination disclosed the fact that the cicatrix had given way, and a raw, hard surface was presenting. This surface was covered with powdered sulphate of zinc, and has continued so to be treated up to this time. The patient has had no hæm-

orrhage, is in in good health, weighs eight and a-half pounds more than she has ever done before, attends to all her family duties, and enjoys life and society. Still, there remains a small, raw surface at the seat of amputation, which thus far I have not compelled to cicatrize. She is now on a visit to friends in Virginia for several weeks. When she returns, I shall cleanse this ulcerated surface thoroughly with the curette, and then use the powdered sulphate of zinc.

This woman has had more than one year of good health, happiness and usefulness, since the 'operation. How long I can guarantee this state of things to her is yet to be seen. If I had seen her in the first, instead of the ninth month of her disease, the cure might have been complete long before this.

CASE II.—Mrs. M—, of West Virginia, æt. 35, married and sterile. I was telegraphed for December 20th, 1878, to come to her residence in that State to operate "for cancer of the womb." She was so feeble from great loss of blood, and exhaustive and offensive discharges from the vagina, that she was unable to come to me.

She had been a victim to the above symptoms for about eight months, and was a picture of suffering and despair. The cervix uteri was an epitheliomatous mass, extending over the upper part of the vagina. Malignant deposit occupied the whole peri-uterine cellular tissue, so that uterus and vagina were thus firmly fixed in their position.

So unpromising was the case, that had I not been sent for by her medical attendant for no other purpose than to operate, and had not the patient and her husband set their hearts on an operation, I should have shrunk from the case.

But on the 21st of December, 1878, with Paquelin's thermo-cautery, surrounded by a wooden sheath, and with wet felt and cotton about the vulva and lower part of the vagina, the patient under chloroform, and Sims' speculum in the vagina, I proceeded to cut away all ulcerative and sloughing masses about the vagina, and also the cervix uteri up to the internal os. The amputated portion was painted with Monsell's solution and glycerine as an antiseptic, and the patient put to bed with a pledget of cotton and glycerine in the vagina.

Notwithstanding my precautions, this patient was badly burned about the vulva and lower vagina (as in Case No. I). The wet cotton and felt generated so much steam by coming in contact with the hot knife, that I was much embarrassed in the operation.

She was left to the care of her most intelligent physician, and I returned to Baltimore the same night. She made a slow, but good recovery—suffering more with the external burns than with the seat of operation.

Five months afterwards, she came to Baltimore to see me, much improved

in health and strength, and I have heard from her through her physician four months later. The seat of operation has never completely cicatrized. She occasionally has some slight bloody flow, but nothing amounting to a hæmorrhage. She has some disagreeable discharge, and more or less neuralgic pains about the pelvis and lower abdomen, from time to time, but nothing comparable to what she had before the operation. These discharges are kept in check by sulphate of zinc. On the other hand, she has now had about ten months of comparative comfort, and has been spared to her friends.

She will ultimately die of cancer, if not carried off sooner by some other disease, but she has been already repaid for the operation.

CASE III.—Mrs. H—, æt. about 35, mother of two children. Epithelioma of cervix uteri, had existed, when I saw her, about fifteen months. The cervix presented the appearance of a cauliflower, occupying nearly the whole vagina; deposit in the whole peri-uterine tissue, and extending to within the internal os. Has been confined to bed six months. Hæmorrhages have been terrific, until she was brought to the brink of the grave. One more hæmorrhage, in my opinion, and the opinion of her attending physician, must have been fatal. A dirty, watery, offensive discharge was most profuse and exhausting. She was so feeble, that I doubted the propriety of any active interference; but it seemed to me, that what little blood she had left was daily being poisoned by the decomposing masses within the vagina; and she was liable, at any moment, to have a hæmorrhage which would carry her off. She was offensive to her friends. For these reasons, I advised cutting away the diseased mass, as far as it could be reached, knowing that it could be done without pain, and with very little loss of blood. My advice was resisted by friends and physician for several weeks. They were satisfied she would die under the operation; but finally, on the 3d of February, 1879, with the thermo-cautery, surrounded by the anti-thermic shield, I cut away all the diseased matter that could be reached, without burning any of the adjacent healthy soft parts, and painted the surface with Monsell's solution and glycerine as an antiseptic.

On the 11th of March, 1879, five weeks after the operation, she rode six miles in a spring wagon to her home in Baltimore county. I heard from her on the 2d of May, three months after the operation. She was then walking about, and was in every way improved in health. I have heard recently that she died the latter part of August, nearly seven months after the operation. The amputated surface never healed, but I am sure her life was prolonged, and her condition was in every way better after the operation than before.

CASE IV.—Mrs. C—, of Pennsylvania, æt. 48, mother of eight children. Was brought to me March 26th, 1879. She had epithelioma of the cervix

uteri, of about ten months' standing, and was treated all this time with local applications for "ulceration of the womb." She was constantly having profuse hæmorrhages, and was so exhausted as to be brought to me on a bed. She was a confirmed opium-eater, to the extent of destroying appetite and digestion. She had much peri-uterine, cancerous infiltration. The intra-vaginal portion of the cervix was very short—not long enough to be grasped by an *écraseur* or galvano-cautery; but the whole infra and supra-vaginal portions of the cervix were peeled out with Paquelin's cautery, protected by Wilson's antithermic shield, on March 29th, 1879. She returned to her home April 25th, 1879, and I never saw her afterwards; but I learned that she did not improve much in health, lived on opium and without food, in spite of her physicians and friends, till the day of her death—the last day of August, five months after the operation. I am convinced that the excessive use of opium was the main cause of no better results in this case. With appetite and digestive power all gone, there was nothing left to build upon, and everything to exhaust her decaying frame.

